



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2009-1100; Directorate Identifier 2009-NE-37-AD]

RIN 2120-AA64

Airworthiness Directives; International Aero Engines AG Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of Proposed Rulemaking (NPRM).

SUMMARY: We propose to supersede an existing airworthiness directive (AD), for all International Aero Engines AG (IAE) V2500-A1, V2525-D5 and V2528-D5 turbofan engines, and certain serial numbers (S/Ns) of IAE V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 turbofan engines. The existing AD currently requires initial and repetitive on-wing ultrasonic inspections (USIs) of certain high-pressure compressor (HPC) stage 3 to 8 drums, and replacement of drum attachment nuts. This proposed AD would expand the affected population for initial and repetitive on-wing inspections of the HPC stage 3 to 8 drum, introduce an eddy current inspection (ECI) procedure, and require additional cleaning and repetitive on-wing USI or ECI of some HPC stage 3 to 8 drums. We are proposing this AD to prevent failure of the HPC stage 3 to 8 drum, uncontained engine failure, and damage to the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.

- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact International Aero Engines AG, 628 Hebron Avenue, Suite 400, Glastonbury, CT 06033; phone: 860-368-3700; fax: 860-368-4600; e-mail: iaeinfo@iae2500.com; website: <https://www.iaeworld.com>. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Carlos Fernandes, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7189; fax: 781-238-7199; e-mail: carlos.fernandes@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2009-1100; Directorate Identifier 2009-NE-37-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On September 15, 2010, we issued AD 2010-20-07, Amendment 39-16441 (75 FR 59067, September 27, 2010), for IAE V2500-A1, V2525-D5, and V2528-D5 turbofan engines and certain S/Ns of IAE V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 turbofan engines. That AD requires initial and repetitive on-wing USI of the HPC stage 3 to 8 drum for cracks for certain S/Ns of V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 series turbofan engines. As mandatory terminating action to the repetitive inspections, that AD requires removal from service of the fully silver plated nuts attaching the HPC stage 3 to 8 drum to the HPC stage 9 to 12 drum, removal of silver residue from the HPC stage 3 to 8 drum, and FPI of the stage 3 to 8 drum within a specified time. For all other engines, that AD requires removal from service of the fully silver plated nuts attaching the HPC stage 3 to 8 drum to the HPC stage 9 to 12 drum, removal of silver residue from the HPC stage 3 to 8 drum, and FPI of the HPC stage 3 to

8 drum at the next drum piece-part exposure. That AD resulted from reports of 39 HPC stage 3 to 8 drums found cracked since March 2009. We issued that AD to prevent failure of the HPC stage 3 to 8 drum, uncontained engine failure, and damage to the airplane.

Actions Since Existing AD Was Issued

Since we issued AD 2010-20-07 (75 FR 59067, September 27, 2010), inspections have found 50 additional HPC drums with cracks. Some reports have indicated that the FPI may miss small cracks. This has necessitated the expansion of the compliance requirements.

Relevant Service Information

We reviewed IAE Service Bulletin (SB) V2500-ENG-72-0615, Revision 3, dated September 20, 2011. That SB will replace IAE SB V2500-ENG-72-0594, Revision 6, dated April 12, 2010 and IAE SB V2500-ENG-72-0603, Revision 1, dated February 17, 2011. We have also reviewed IAE SB No. V2500-ENG-72-0601, Revision 2, dated April 12, 2010. That SB describes procedures for removing the silver residue from the HPC stage 3 to 8 drum. We have also reviewed IAE SB V2500-ENG-72-0615, Revision 3, dated September 20, 2011 and IAE SB No. V2500-ENG-72-0608, Revision 3, dated September 20, 2011. Those SBs describe procedures for performing USIs of the HPC stage 3 to 8 drum. We have also reviewed IAE SB V2500-ENG-72-0625, dated September 20, 2011 which introduces an ECI procedure that will improve the ability to detect cracks of the HPC 3 to 8 drum.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would retain certain requirements of AD 2010-20-07. The proposed AD has the same applicability requirements as AD 2010-20-07. This proposed AD, however, would expand the initial and repetitive on-wing USIs of the HPC stage 3 to 8 drum for cracks to a larger population of S/Ns of V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 turbofan engines and all V2525-D5 and V2528-D5 turbofan engines. This proposed AD would introduce an ECI procedure that will improve the ability to detect cracks of the HPC stage 3 to 8 drum. This proposed AD would require repetitive on-wing USI of the HPC stage 3 to 8 drum after removal from service of all of the fully silver plated nuts attaching the HPC stage 3 to 8 drum to the HPC stage 9 to 12 drum; removal of silver residue from the HPC stage 3 to 8 drum; and FPI or ECI of the stage 3 to 8 drum. This proposed AD would also remove the mandatory terminating action and replace it with an optional terminating action.

Costs of Compliance

We estimate that this proposed AD would affect about 906 IAE V2500-A1, V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 turbofan engines installed on airplanes of U.S. registry. We estimate that 906 of these engines would require USIs, and that it would take about 3 work-hours per engine to perform one USI. We estimate that it would take about 2 work-hours per engine to perform the FPI of the HPC stage 3 to 8 drum, and that the average labor rate is \$85 per work-hour. We also estimate that removal of silver residue from the engine would cost about \$2,600 per engine. Required parts would cost about \$795 per engine. We also estimate the cost of replacing a drum if found cracked would be \$189,000. We have no way of determining the number of aircraft that might need this replacement. Based on these figures, we estimate the total cost of the proposed AD to U.S. operators to be \$4,385,040.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 2010-20-07, Amendment 39-16441 (75 FR 59067, September 27, 2010), and adding the following new AD:

International Aero Engines AG: Docket No. FAA-2009-1100; Directorate Identifier 2009-NE-37-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD supersedes AD 2010-20-07, Amendment 39-16441 (75 FR 59067, September 27, 2010).

(c) Applicability

This AD applies to:

- (1) All International Aero Engines AG (IAE) V2500-A1 turbofan engines; and
- (2) All IAE V2525-D5 and V2528-D5 turbofan engines; and
- (3) IAE V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 turbofan engines with serial numbers (S/Ns) up to and including V13181, and with S/Ns from V15000 up to and including V15245.

(d) Unsafe Condition

This AD results from reports of 50 additional high-pressure compressor (HPC) stage 3 to 8 drums found cracked since AD 2010-20-07 was issued. We are issuing this AD to prevent failure of the HPC stage 3 to 8 drum, uncontained engine failure, and damage to the airplane.

(e) Compliance

You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

(f) Initial Ultrasonic Inspections (USIs) of the HPC Stage 3 to 8 Drum

(1) Using IAE Service Bulletin (SB) No. V2500-ENG-72-0615, Revision 3, dated September 20, 2011, Accomplishment Instructions, paragraph 3, perform an initial USI of the HPC stage 3 to 8 drum:

(i) For IAE V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 turbofan engines with S/Ns in “Group A” in Paragraph 1.A. in IAE SB No. V2500-ENG-72-0615, Revision 3, dated September 20, 2011, before accumulating 5,000 cycles-since-new (CSN) or within 500 cycles from the effective date of this AD, whichever occurs later.

(ii) For IAE V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 turbofan engines with S/Ns in “Group B” in Paragraph 1.A. in IAE SB No. V2500-ENG-72-0615, Revision 3, dated September 20, 2011, before accumulating 12,500 CSN or within 500 cycles from the effective date of this AD, whichever occurs later, not to exceed 13,700 CSN.

(2) For all IAE V2525-D5 and V2528-D5 turbofan engines, using IAE SB No. V2500-ENG-72-0608, Revision 3 dated September 20, 2011, Accomplishment Instructions, paragraph 3, perform an initial USI of the HPC stage 3 to 8 drum before accumulating 12,500 CSN or within 500 cycles from the effective date of this AD, whichever occurs later, not to exceed 13,700 CSN.

(3) If cracks or crack indications are identified, remove the drum from service before further flight.

(g) Removal of All Fully Silver Plated Nuts

(1) At the next piece part exposure of the HPC stage 3 to 8 drum after the effective date of this AD, but no later than 8 years from the effective date of this AD, do the following before returning any HPC stage 3 to 8 drum to service:

(i) Remove from service all fully silver plated nuts, part number (P/N) AS44862 or equivalent, that attach the HPC stage 3 to 8 drum to the HPC stage 9 to 12 drum.

(ii) Remove the silver residue from the HPC stage 3 to 8 drum using the IAE SB No. V2500-ENG-72-0601, Revision 2, dated April 12, 2010, Accomplishment Instructions, paragraph 3. Drums cleaned before the effective date of this AD using engine manual task 72-41-11-110-001 satisfy this requirement.

(2) Perform an inspection using one of the following methods:

(i) Fluorescent penetrant inspect (FPI) the HPC stage 3 to 8 drum for cracks, and remove from service any drum found cracked. You can find guidance on performing an FPI of the HPC stage 3 to 8 drum in IAE engine manual task 72-41-11-200-001.

(ii) Eddy Current Inspect (ECI) the HPC stage 3 to 8 drum for cracks, using IAE SB No. V2500-ENG-72-0625, dated September 20, 2011, and remove from service any drum found cracked.

(3) If cracks or crack indications are identified, remove the drum from service before further flight.

(h) Repetitive USIs of the HPC Stage 3 to 8 Drum

Perform repetitive USIs of the HPC stage 3 to 8 drum for cracks in accordance with paragraphs (f)(1) or (f)(2) of this AD as follows:

(1) Within every 750 cycles-since-last USI; or

(2) Within 2,500 cycles-since-last FPI; or

(3) Within 13,000 cycles-since-last ECI, whichever occurs latest.

(i) Optional Terminating Action

Accomplishment of paragraphs (h)(1) and (h)(2) of this AD, eliminate the cleaning and inspection requirements of this AD and no further actions are required.

(1) Remove from service all fully silver plated nuts, P/N AS44862 or equivalent, that attach the HPC stage 3 to 8 drum to the HPC stage 9 to 12 drum.

(2) Install a zero-time HPC stage 3 to 8 drum or a drum that has never operated with fully silver plated nuts, P/N AS44862 or equivalent, that attach the HPC stage 3 to 8 drum to the HPC stage 9 to 12 drum.

(j) Definitions

For the purpose of this AD, piece-part exposure is removal of the HPC stage 3 to 8 drum from the engine and removal of all blades from the drum.

(k) Previous Credit

(1) Initial or repetitive USIs of the HPC stage 3 to 8 drum using IAE SB No. V2500-ENG-72-0594, Revision 3, dated August 7, 2009, or Revision 4, dated October 13, 2009, or Revision 5, dated November 23, 2009, or Revision 6, dated April 12, 2010, before the effective date of this AD, meets the inspection requirements of paragraphs (f)(1) through (f)(3) of this AD.

(2) Initial or repetitive USIs of the HPC stage 3 to 8 drum using IAE SB No. V2500-ENG-72-0603, Original Issue, dated November 24 2009, or Revision 1, dated December 18, 2009, or Revision 2, dated March 17, 2010, before the effective date of this AD, meets the inspection requirements of paragraphs (f)(1) through (f)(3) of this AD.

(3) Initial or repetitive USIs of the HPC stage 3 to 8 drum using IAE SB No. V2500-ENG-72-0608, Revision 3, dated September 20, 2011, before the effective date of this AD, meets the inspection requirements of paragraphs (f)(1) through (f)(3) of this AD.

(4) Initial or repetitive USIs of the HPC stage 3 to 8 drum using IAE SB No. V2500-ENG-72-615, Revision 3, dated September 20, 2011, before the effective date of this AD, meets the inspection requirements of paragraphs (f)(1) through (f)(3) of this AD.

(l) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(m) Related Information

(1) For more information about this AD, contact Carlos Fernandes, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7189; fax: 781-238-7199; e-mail: carlos.fernandes@faa.gov.

(2) For service information identified in this AD, contact International Aero Engines AG, 628 Hebron Avenue, Suite 400, Glastonbury, CT 06033; phone: 860-368-3700; fax: 860-368-4600; e-mail: iaeinfo@iaev2500.com; website: <https://www.iaeworld.com>.

(3) You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on December 23, 2011.

Peter A. White,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

[FR Doc. 2011-33536 Filed 12/29/2011 at 8:45 am; Publication Date: 12/30/2011]